

ZILOVA, T.K.; PETRUKHINA, N.I.; FRIDMAN, Ya.N.

Regularities in the effect of the yielding of load on the rate of deformation. Dokl. AN SSSR 124 no.6:1236-1239 F '59.
(MIRA 12:3)

1. Predstavleno akademikom G.V. Kurdyumovym.
(Deformations (Mechanics))

SADOVNIKOV, V.; YASINOVSKIY, M.; ESTRIN, R.; ABRAMOV, G.; FRIDMAN, Ye.

Technical information. Okhr. truda i sots. strakh. 6 no.8:41-44
Ag '63. (MIRA 16:10)

FRIDMAN, Ye. B.

USSR/Metals - Tests, Micromechanical
Testing Procedures

May 50

"Methods of Micromechanical Testing," I. M. Roytman, Ye. B. Fridman, 14½ pp

"Zavod Lab" Vol XVI, No 5

Briefly reviews development of methods for micromechanical investigation of metals, describes microspecimens and equipment, and discusses accuracy of micromechanical methods, effect of machining on properties of microspecimens, and influence of scale factor on experimental results. Evaluates significance of micromechanical methods in solution of numerous theoretical and practical problems and enumerates purposes of possible application of these methods.

PA 160T76

FRIDMAN, Ye. G.

Significance of tomographic study in the diagnosis of tumors of the maxilla. Vest. otorin. no.3:56-60 '61. (MIRA 14:12)

1. Iz Gorodskoy onkologicheskoy bol'nitsy i III Kafedry rentgenologii (zav. - prof. I. L. Tager) Tsentral'nogo instituta usovershenstvovaniya vrachey, Moskva.

(JAWS—TUMORS)

TAGER, I.L.; FRIDMAN, Ye.G.

Difficulties and errors in the X-ray diagnosis of cancer of the
resected stomach. Vest. rent. i rad. 39 no.5:23-28 S-0 '64.

(MIRA 18:3)

1. Institut eksperimental'noy i klinicheskoy onkologii AMN SSSR,
Moskva.

FRIDMAN, Ye.G.; GUSEV, F.F.

New data on the function of a resected stomach. Vest. rent. 1
rad. 40 no.1:30-33 Ja-F '65. (MIRA 18:6)

1. Radiologicheskiy otdel (zav.- prof. I.L. Tager) Instituta
eksperimental'noy i klinicheskoy onkologii AMN SSSR i meditsinskaya
sanitarnaya chast' No.12 Ministerstva zdravookhraneniya SSSR,
Moskva.

FRIDMAN, Ye. I.

Fridman, Ye. I. "Clinico-pathogenetic features of some hypo- and avitaminosis in children," Trudy VI Vsesoyuz. s'yezda det. vrachey, posvyashch. pamyati prof. Filatova, Moscow, 1948, p. 62-70

SO: U-3264, 10 April 1953, (Létopis 'Zhurnal 'nykh Statey, No. 3, 1949)

FRIDMAN, Ye.I., inzh.; BELYAYEVA, M.N., inzh.; VEYNER, A.A., inzh.;
GUBANOVA, N.F., inzh.

Properties of some heat-resistant lacquers and glues. Vest.elektro-
prom. 31 no.6:31-37 Je '60. (MIRA 13:7)
(Lacquer and lacquering--Thermal properties)
(Glue--Thermal properties)

S/110/61/000/001/004/023
E194/E455

AUTHOR: Fridman, Yo.I., Engineer

TITLE: The Properties of New Impregnating Compositions КП (KP)

PERIODICAL: Vestnik elektropromyshlennosti, 1961, No1, pp.9-14

TEXT: Thermo-setting insulating impregnating varnishes have recently been developed which can be dried in a thick layer and which firmly cement windings. They include: varnishes grades $\Phi\Lambda$ -98 ($\Phi\Lambda$ -98) and $A\Phi$ -17 ($A\Phi$ -17), which contain organic solvents; solventless polyester compositions or compounds grades КП-10 (KP-10) and КП-18 (KP-18); and also alkyde-styrol-silicone varnish grade 100 $AC\Phi$ (100 ASF). For testing, 20 g of the compound or varnish were poured into an aluminium foil box of 45 x 45 mm, 20 mm high and placed in an oven thermostatically controlled at a temperature of 120 to 125°C. After heating for thirty minutes, compounds KP-10 and KP-18 formed solid polymers, whereas varnish 100 ASF gave an elastic gel and did not harden in less than eight hours at 120°C or four hours at 135°C. Thus the two compounds have the advantage of much more rapid polymerisation than the varnish. They also have the advantage of containing no solvent which might
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1947/155
1947/155

The Properties of New Impregnating Compositions КП (KP)

damage the enamel insulation of wires. Tests were made of the ability of the compounds to cement together a bundle of wires which, after varnishing, had been kept at a temperature of 125°C for times ranging from 1 to 16 hours. The tests showed that impregnated transformer windings can be fully polymerised in four hours at 125°C with KP compounds whilst eight hours at 120°C is required for the varnish 100 ASF. The compounds produced films of better mechanical properties than the varnish. The electrical properties of the compounds KP-10 and KP-18 were studied on standard disc specimens 100 mm diameter and 2 mm thick; varnish 100 ASF was tested in the form of films on ten discs of standard size. Tests were made at temperatures up to 150°C. The electrical properties were also tested at temperatures down to -60°C. The electrical properties were determined after thermal ageing at 200°C and also after tropical storage tests. Further tests were then made, using transformer coils wound of wire grade ПЭВ-2 (PEV-2); the conditions of impregnation and polymerisation are given. Similar tests of the electrical properties were then made on the coil.

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~ /110/61/000/001/004/023
E194/E455

The Properties of New Impregnating Compositions КП (KP)

The impregnating materials were also tested in radio transformers intended for a working temperature of 135°C. Transformers were impregnated with compounds KP-10, KP-18, varnishes 100 ASF and AF-17, and some were covered with epoxide lacquer grade ОЭП-4171 (OEP-4171). They were thermally aged under load for 1000 hours and then the electrical properties were determined. It is concluded that in the tests on standard specimens the properties of compounds KP are sometimes less satisfactory than those of varnishes 100 ASF and AF-17, particularly in respect of resistance to moisture. However, in tests on coils and transformers, the KP compounds are every bit as good as the others. Compounds KP and varnish 100 ASF can operate within the temperature range -60 to +150°C. The heat-resistance of KP compounds is higher than that of varnish 100 ASF, and they can be used at a temperature of 200°C. As compared with ordinary varnishes, compounds KP-10 and KP-18 have a shorter polymerisation time and less influence on wire enamel, and may be widely used in the production of electronic equipment, particularly for low frequencies. Impregnating compounds grade KP can also be

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S/110/61/000/001/004/023

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The Properties of New Impregnating Compositions **КП (КР)**

used for parts exposed to tropical climates provided that a suitable tropical coating is used. Compound KP-10 has the best impregnating properties and also good and stable electrical characteristics. ✓

Acknowledgments are expressed to Engineer A.A.Veyner and Engineer T.I.Kuznetsova for their assistance. There are 8 figures.

SUBMITTED: July 21, 1960

Card 4/4

FRIDMAN, Ye.I.; Primalni uchastiye: BELYAYEV, M.M.; GONCHAROVA, T.A.;
GUBANOVA, N.F.; KUZNETSOVA, T.I.; KIRILINA, R.A.

Using some electric insulating enamels for coating radio equip-
ment. Lakokras. mat. i ikh prim. no.6:42-45 '61. (MIRA 15:3)
(Radio—Equipment and supplies) (Enamel and enameling)

L 2324-66 EWT(m)/EPF(c)/EWP(j)/T/ETC(m)

WW/RM

ACCESSION NR: AP5022222

UR/0191/65/000/009/0016/0019

678.673,01:536.495:537.311

AUTHOR: Vinogradova, S. V.; Korshak, V. V.; Fridman, Ye. I.; Andreyeva, M. A.;
Baraboshkina, L. N.

TITLE: Heat-resistant electroinsulating polyarylate plastic material

SOURCE: Plasticheskiye massy, no. 9, 1965, 16-19

TOPIC TAGS: plasticizer, heat resistant plastic, heat resistant material, polyaryl plastic, terephthalic acid, electric insulator, plastic, heat resistance, polyarylate, phenolphthalein, bisphenol A, isophthalic acid, softening point

ABSTRACT: The possibility of preparing heat-resistant plastics suitable for electric insulators and capable of being compression molded was studied by preparing neat and mixed compositions from phenolphthalein isophthalate or terephthalate based polyarylates (i.e., aromatic polyesters). It was also attempted to prepare polymers which had to be kept at their melting temperature during compression molding for a minimum time. Thus, powdered poly(phenolphthalein isophthalate) could be compression molded at 270—300C into semitransparent light-brown samples of plastic designated as F-1, while the poly(phenolphthalein terephthalate), designated as plastic F-2, cracked

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L 2324-66
ACCESSION NR: AP5022222

and disintegrated after being taken out of the molds. The addition of plasticizers, "Sovol" [biphenol dichloride], a polysiloxane and some other polyarylates based on either bisphenol A or phenolphthalein sebacate, made it possible to prepare compression molded samples from F-2 with softening points from 255 to 340C. The addition of Sovol in varying amounts or the same polysiloxane to F-1 produced plastics with softening points between 250 and 285C. Even the sample with 10% Sovol still had a softening point of 230C, which was considered to be sufficiently high, combined with good workability of the material. The introduction of fillers (up to 40% by weight of the composition) was also studied for the purpose of reducing cracking of the plastic and to save polymer materials. Good results were obtained with quartz flour or talcum, while aluminum oxide or silica gel were ineffective. The filled F-2 polyarylate samples were resistant to thermal shock; they withstood repeated sharp temperature change from -60 to 250C. The polyarylate compositions obtained had high dielectric properties in a rather wide range of temperatures. Orig. art. has: 4 figures and 4 tables. [BN]

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, 00

NO REF SOV: 004
Card 2/2, *nd*

OTHER: 000

ATD PRESS: 4/107

VINOGRADOVA, S.V.; KORSHAK, V.V.; FRIDMAN, Ye.I.; ANDREYEVA, M.A.;
BARABOSHKINA, L.N.

Heat resistant electric insulation plastics on a polyarylate
base. Plast. massy. no.9:16-19 '65. (MIRA 18:9)

FRIDMAN Ye.L.

137-58-6-11764

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 79 (USSR)

AUTHOR: Fridman, Ye.L.

TITLE: The Purification of Converter Gases (Ochistka konverternykh gazov)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii, 1957, Vol 18, pp 732-737

ABSTRACT: An experiment is described in the design and assembly, at the im. Petrovskiy Plant, of equipment (E) for the purification of converter gases. The purification system includes a scrubber, a Venturi tube, and a cyclone. The Venturi tube uses cold gas, which reduces its dimensions considerably. The E is designed to take up (by suction) converter gases diluted with four times their volume of air. The gases are taken up by exhausters of 35-75,000 m³/hr output, which create a suction of 700-1200 mm H₂O. The solution found for removal of the gases from the converter is of low efficiency, the stack being off to one side. The E makes it possible to reduce the dust content of the gas taken up by suction from 20-30 to 0.5 g/m³.
Card 1/1 The E design provides for waste-heat recovery boilers. G.S.
1. Waste gases--Applications 2. Waste gases--Purification 2. Furnaces
--Operation

AFANAS'YEV, S.G.; KOSTENETSKIY, O.N.; SHUMOV, M.M.; IVANOV, Ye.V.; PAVLOV, A.I.; GARGER, K.S.; KRIVULYA, G.D.; UMNOV, V.D.; UL'YANOV, D.P.; MAMCHITS, K.A.; PETROV, S.A.; SOROKIN, A.A.; ~~FRIEDMAN~~, Ye.L.; EPSHTEYN, Z.D.; IVANTSOV, G.P.; NETESIN, A.Ye.

Reports (brief annotations). Biul. TSNIICM no.18/19:106-107 '57.
(MIRA 11:4)

1. Zavod im. Petrovskogo (for Kostenetskiy). 2. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Shumov, Epshteyn, Ivantsov). 3. Vsesoyuznyy nauchno-issledovatel'skiy institut ogneporov (for Ivanov). 4. Stal'proyekt (for Pavlov). 5. Metallurgicheskiy zavod im. Dzerzhinskogo (for Garger, Krivulya, Umov, Ul'yanov, Mamchits, Petrov, Sorokin). 6. Dnepropetrovskiy filial Gipromeza (for Fridman). 7. TSentral'nyy institut informatsii chernoy metallurgii (for Netesin)
(Bessemer process)

KALYUZHNYI, Denis Nikolayevich, prof.; Prinsipal uchastiye FRIDMAN,
Ye.L., inzh.; SUPONITSKIY, M.Ya., red.; GITSHEYN, A.D.,
tekhn. red.

[Protection of the air from contamination by discharges from
ferrous metallurgical plants] Sanitarnaya okhrana atmosfernogo
vozdukhа ot vybrosov predpriyatii chernoi metallurgii. Pri
uchastii E.L.Fridmana. Kiev, Gosmedizdat USSR, 1961. 180 p.
(MIRA 15:7)

(Air--Pollution) (Iron and steel plants)

FREIDMAN, Ye. M.

Phys. ⁹¹ A powerful sealed-off x-ray tube for spectral analysis.
K. I. Narbut and E. M. Friedman. Dokl. Akad. Sci.
U.S.S.R., Phys. Ser. 20: 425-4 (1965) (English translation).
—See C.A. 50, 11061i. B.M.R.

3 4
RM
MT

Category : USSR/Optics - X-rays

K-8

Abs Jour : Ref Zhur - Fizika, No 1, 195 No 2562

Author : Narbutt, K.I., Fridman, Ye.M.

Inst : Inst. of Geological Sciences, Academy of Sciences USSR

Title : High-Power Sealed X-Ray tube for Spectral Analysis

Orig Pub : Izv. AN SSSR, ser. fiz., 1956, 20, No 1, 136-141

Abstract : Description of powerful sealed X-ray tube BFR-70 for X-ray spectral analysis. The anode part of the tube is a massive copper body with drilled ducts for water cooling. The cathode, located in the rectangular chamber of the body, has a linear tungsten spiral. The anode is hard-soldered into the body and has a tungsten rectangular mirror, set at an angle of 60° to the tube axis. Cut in the wall of the body, parallel to the major axis of the mirror, is an output window for the emergence of the X rays, measuring 56×14 mm, covered with a filter in the form of a plate made of vacuum-packed beryllium 1 mm thick. The tube has a broad focus measuring 38×5 mm and permits the dissipation of high power by the anode (200 ma at 50 kv or 150 ma at 70 kv). The maximum permissible anode voltage of the tube for prolonged continuous operation is 70 kv. The filament current does not exceed 7.4 a, the filament voltage is 13 v. The sensitivity in the case of fluorescent X-ray spectral analysis is 0.01%.

Card : 1/1

24 3430

1227, 9901, 2607

26332
S/048/61/025/006/005/009
B104/B202

AUTHORS: Narbutt, K. I., Fridman, Ye. M., Nikolayenko, G. M.

TITLE: X-ray tube with constant vacuum for a long-wave X-ray spectrometer

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya.
v. 25, no. 8, 1961, 936-938

TEXT: The present paper was the subject of a lecture delivered at the 5th Conference on X-ray Spectroscopy at Khar'kov, January 30 to February 4, 1961. When studying the long-wave range of the X-ray spectrum, usually, detachable X-ray tubes have to be used in which the evacuated space of the X-ray tube is connected with the evacuated space of the X-ray spectrometer. Evacuation of this system encounters great difficulties in X-ray spectrum analysis. Since, however, a vacuum of about 10^{-2} mm Hg is sufficient to prevent absorption of the X-rays up to a wavelength of about 3.5 Å it has been attempted several times, to achieve a so-called separation of the vacuum. The authors describe a

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X-ray tube with constant vacuum ...

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S/048/01/025/008/005/009
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long-wave fluorescence spectrometer with a specialized X-ray tube with constant vacuum. In the construction of this spectrometer the authors attempted to meet the following demands: 1) The X-ray tube must be constructed such that the part of the tube with the window for the outlet of the rays can be inserted into the vacuum part of the spectrometer; 2) the window should be transparent to soft X-radiation; 3) the focus of the X-ray tube should be such that an Iogann type X-ray optical scheme has minimum dimensions; 4) the tube should operate at a 50-kv anode voltage with an anode current of 100 ma. Fig. 1 shows the scheme of the X-ray tube developed from these points of view. With the aid of the steel flange 2 and the sealing ring 3 the part 1 of the tube is hermetically attached to the part 4 of the vacuum spectrometer. The glass cylinder 7 is attached to the part 1 with the aid of the ring 6. The part is water-cooled, the water being supplied by 8. The beryllium disc 9 with a thickness smaller than 0.3 mm serves as window for the X-rays. The anode 10 consists of copper, tungsten, molybdenum or chromium. The cylindrical cathode 11 has a tantalum focusing head 12. The cylinder is fastened to the cross-shaped glass base 13 by means of a steel collar. The cathode is produced from thorium - tungsten carbide. 14 is a lead cover which is

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X-ray tube with constant vacuum ...

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S/048/61/025/008/005/009
B104/B202

attached to the body by means of the brass jacket 15. The X-ray tube, described here is of the type ~~548~~ 5 (BKHV5). Tests proved that with the aid of the spectrometer described, it is possible to excite the fluorescence X-ray spectra of the L-series of rare earth elements. The authors compared the effectiveness of the excitation of the L-spectrum of lanthanum (line II La^{a1}) with the long-wave X-ray spectrometer of the type ~~ДРУС~~ -3 (DRUS-3) which is produced by the research department of Rostovskiy universitet (Rostov University) and the spectrometer described here. It was found that using the X-ray tube described here, a threefold excitation intensity of the fluorescence of the L-spectrum of lanthanum can be reached. Thus, the sensitivity of the X-ray spectrum analysis to elements of the group of the rare earths can be improved. There are 3 figures and 2 Soviet-bloc references.

Fig. 1; section of the X-ray tube for a long-wave spectrometer.
Legend: 1) atmosphere; 2) oil; 3) vacuum. The measures are given in mm.

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L 17321-63

EPR/EWT(1)/BDS AFFTC/ASD Ps-4 WW

ACCESSION NR: AP3004909

S/0120/63/000/004/0158/0159

AUTHOR: Lozinskiy, M. G.; Fridman, Ye. M.; Nikolayenko, G. M.; 62
Ioffe, Yu. K.

TITLE: Sharp-focused higher-power X-ray tube for structure analysis

SOURCE: Pribery*1 tekhnika eksperimenta, no. 4, 1963, 158-159
Vol 2

TOPIC TAGS: X-ray tube, structure analysis, URS-70 X-ray outfit, sharp-focused X-ray tube

ABSTRACT: A new design of a linear-focus X-ray tube with electrostatic focusing of the electron beam is described. A 215-mm-long copper housing has a vacuum-tight beryllium window and water-cooled anode. Tube prototypes were tested in a regular URS-70 X-ray outfit; stable operation was noted at a rated voltage of 45 kv and test voltage of 50 kv. Maximum currents: 2.5 ma with Mo and Cu mirrors and 500 microamp, with Fe, Co, Ni, or Cr mirrors. A sample

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L 17321-63

ACCESSION NR: AP3004909

of a diffraction curve of an alpha-quartz polycrystal determined with the above
X-ray tube is presented. Orig. art. has: 3 figures.

ASSOCIATION: none

SUBMITTED: 25Jul62

DATE ACQ: 28Aug63

ENCL: 00

SUB CODE: PH

NO REF SOV: 000

OTHER: 000

Card 2/2

SOBOLEVSKAYA, G.D.; IOFFE, Yu.K.; NIKOLAYENKO, G.M.; FRIDMAN, Ye.M.

High-power small-sized X-ray tube for fluorescent X-ray spectroscopy. Zav. lab. 31 no.11:1414-1415 '65. (MIRA 19:1)

FRIDMAN, Ye. S.

Fridman, Ye. S. "Tissue therapy of sluggish wounds," Sbornik trudov Nauch.-issled. in-ta ortopedii, travmatologii i protezirovaniya (K-vo zdravookhraneniya Uz SSR), Vol. I, 1948, p. 157-64

SO: U-4934, 29 Oct. 53, (Letopis 'Zhurnal 'nykh Stateli, No. 16, 1949).

L 24057-66 EWT(1)/EMA(h)

ACC NR: AP6013250

SOURCE CODE: UR/0413/66/000/008/0039/0039

INVENTOR: Fridlyand, Ye. S.

ORG: none

TITLE: Commutating device. Class 21, No. 180662

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 39

TOPIC TAGS: switching circuit, *commutator*

ABSTRACT: This Author Certificate introduces a device which utilizes a microswitch with an external mechanical control. The microswitch has a catch and is fixed in relation to the mechanical elements which move translationally and rectilinearly or rotate. In order to fix the moment of switch-off in relation to the mechanical elements approaching the catch from any direction, reversible levers with fixed control screws placed on both sides of the microswitch rod and pressed to the supports by springs are installed on the base of the microswitch. [DW]

SUB CODE: 09/ SUBM DATE: 03May65/

Card 1/1 *dda*

UDC: 621.316.578

TEST AND JND CRITERIA		PROCESSES AND PROPERTIES INDEX		JND AND d'n CRITERIA	
<p>FRIDMAN, Ye. Ye.</p>		<p>Refractometric method of rapid analysis of the condensate in the production of synthetic acetone. D. A. Frank-Kamenetskii and E. E. Fridman (Gorkii State Univ.). <i>Zhurnal Fiz. Khim.</i> 18, 45-7 (1947) (in Russian).--</p>		<p>2</p>	
<p>Refractive indices n_D of ternary mixts. $\text{Me}_2\text{CO}-\text{Me}_2\text{CHOH}-\text{H}_2\text{O}$ were deid. and plotted against % H_2O for various $\text{Me}_2\text{CO}-\text{Me}_2\text{CHOH}$ ratios. On all curves for Me_2CHOH 0-72% (of the sum $\text{Me}_2\text{CO} + \text{Me}_2\text{CHOH}$), n has a max. at about 94-18% H_2O; the max. disappears for pure $\text{Me}_2\text{CHOH}-\text{H}_2\text{O}$. At high H_2O contents, the curves for various $\text{Me}_2\text{CO}/\text{Me}_2\text{CHOH}$ ratios become very close and tend to merge. Plots of d, similarly constructed against % H_2O show the Me_2CO and Me_2CHOH curves to be very close to each other up to 80% H_2O where they merge into one; consequently, analysis cannot be based on d deids. alone but is feasible by simultaneous measurements of n and d. On the basis of the data, two nomograms were constructed permitting the reading of the Me_2CO and the Me_2CHOH contents from n and d, in ternary mixts. contg. not less than 30% Me_2CO. Measurements must be reduced to 15° which is done with the aid of auxiliary nomograms constructed on the basis of deids. of the temp. coeffs. In both artificial mixts. and in industrial condensates of catalytic oxidation of Me_2CHOH to Me_2CO, the method gave an accuracy of 2% with d measured to 3, and n to 4, decimal digits.</p>		<p>N. Thon</p>			
<p>ASS. SLA METALLURGICAL LITERATURE CLASSIFICATION</p>					
<p>BOOK DIVISION</p>					
<p>CLASS. ONE</p>					

FRIDMAN, Ye.Ye., inzh.

Safe service of reinforced concrete petroleum tanks. Bezop.truda v prom.
6 no.8:26-28 Ag '62. (MIRA 16:4)

1. Vsesoyuznyy neftyanoy nauchno-issledovatel'skiy institut po tekhnike
bezopasnosti.

(Petroleum-Storage)

FRIDMAN, Ye.Ye.

Safety measures in using apparatus in deasphalting with propane.
Trudy VNIITB no.10:65-67 58. (MIRA 15:5)
(Petroleum refineries--Safety measures)

FRIDMAN, Yevgeniya Yefimovna; TITSKAYA, B.F., ved. red.

[Safety engineering for pressure and vacuum distillation
units] Tekhnika bezopasnosti na atmosferno-vakuumnykh
ustanovkakh. Moskva, Khimiia, 1964. 105 p.

(MIRA 17:12)

PRANULIS, M.F.; FRIDMAN, Ye.Ye.

Efficient method of cleaning equipment of thermal cracking
units. Trudy VNIITB no.11:109-115 '59. (MIRA 15:5)
(Cracking process)

FRIDMAN, Ye.Ye.

Localization of Ghon's foci in pulmonary segments. Arkh. pat. 22
no. 6:33-40 '60. (MIRA 14:1)
(TUBERCULOSIS)

FRIDMAN, Ye.Ye.

Mechanical cleaning of drying rooms. Neftianik 5 n. 3:15-17
Mr '60. (MIRA 14:9)

1. Sotrudnik Vsesoyuznogo nauchno-issledovatel'skogo instituta
tekhniki bezopasnosti.

(Catalysts)|

BAKINOVSKIY, V.L., kand.tekhn.nauk; LIPINSKIY, G.V., inzh.; OSADCHIY, A.P.;
inzh.; FRIDMAN, Ye.Ya., inzh.

IKL-5 universal pulse device for measuring the distance to
damages in overhead and cable lines for electric transmission
and communications. Trudy VNIIE no.8:35-43 '59. (MIRA 13:9)
(Electric lines--Testing)

FRIDMAN, Ye. Ye. and FRANK-KAMENETSKIY, D. (ed.)

Textbook for Physics Experimenters (Spravochnik fizika-eksperimentatora),
D. Key, T. Lebi, translated by Ye. Ye. Fridman, edited by D. Frank-Kamenetskiy,
Goz izd inostrannoy literatury (State Publishing House for Foreign Literature),
1949, 299 pp.

FRIDMAN, YU.

AID P - 2221

Subject : USSR/Aeronautics

Card 1/1 Pub. 58 - 4/19

Authors : Fridman, Yu. and Meylakhs, M.

Title : Instrument flying

Periodical: Kryl. rod., 5, 8-9, My 1955

Abstract : The author describes instrument flying on a Yak-18 sport aircraft. He mentions the following instruments: artificial horizon AGK-47 B and the watch AVR-M.

Institution: None

Submitted : No date

FRIDMAN, Yu.A.

Calculating the magnitude of an inclination angle of milling
machine spindle during the machining of planes. Stan.i instr.
34 no.4:14-15 Ap '63. (MIRA 16:3)
(Milling machines)

FRIDMAN, Yu.A.

Device for determining the position of a straight line.
Mashinostroitel' no.6:25 Je '63. (MIRA 16:7)

(No subject headings)

ACC NR: AP6025685

(A)

SOURCE CODE: UR/0413/66/000/013/0151/0151

INVENTOR: Fridman, Yu. A.; Kopytov, S. A.

ORG: None

TITLE: A method for finishing convex developable surfaces. Class 67, No. 183619

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 151

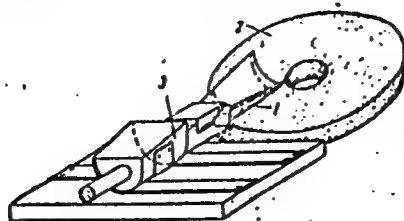
TOPIC TAGS: surface finishing, turbine blade

ABSTRACT: This Author's Certificate introduces a method for finishing convex developable surfaces such as the back sides of turbine blades. The method consists of using the end surface of a rotating tool as a plane which determines the envelope of the surface to be finished, while the necessary motion of the workpiece is provided by a three-dimensional master form connected to a flat plate by bands stretched in opposite directions. The master form rolls along this plate without sliding. Constant linear contact of the workpiece with the end surface of the tool is achieved by making the master form a convex developable surface proportionally equivalent to the machined surface.

UDC: 621.923.1

Card 1/2

ACC NR: AP6025685



1—workpiece; 2—end surface of
the tool; 3—master form

SUB CODE: 13/ SUBM DATE: 07May62

Card 2/2

FRIDMAN, YU.M.

Subject : USSR/Medicine AID P - 2468
Card 1/1 Pub. 37 - 15/18
Author : Fridman, Yu M., Sanitary Inspector
Title : Ornithosis
Periodical : Sig. i san., 6, 58-59, Je 1955
Abstract : Describes a disease, a kind of pneumonia, which occurs among workers in poultry state farms and poultry factories where Peking ducks are raised and processed. This infection, called "Ornithosis" from the Greek word "Ornis" (bird), was observed in Moscow Province. Anti-epidemic measures are recommended.
Institution: Moscow Oblast' Medical and Epidemiological Station
Submitted : Sept. 18, 1954

GEL'BERGER, M.G.; MUR, M.G.; FRIDMAN, Yu.M.

Bacteriological investigations of sour milk and cottage cheese sold
at collective farm markets. Vop.pit. 18 no.5:81 S-O '59.

(MIRA 13:1)

1. Iz Moskovskoy oblastnoy sanitarno-epidemiologicheskoy stantsii.
(DAIRY PRODUCTS microbiol.)

FRIDMAN, Yu. M., Eng.

"Metal Content and Ways for Reducing It" p.203-212 in book
Increasing the Quality and Efficiency of Machinery, Moscow, Mashgiz, 1957,
626pp.

PHASE I BOOK COPOLYTATION

801/4273
501/2-5-102

beiliegend. Glaswaage geschickte obmerkwürdige

Topography field observer (Problems in the Physics of Clouds) Washington, D.C.: American Meteorological Society, 1960. 102 p. (Series: Text Study, 77). Extra slip inserted. Copies printed.

Additional Sponsoring Agency: USSR, Garmyevskaya Admirevorskoye
oblasty. Bd. (Title page): S. D. Malukin, Doctor of Physics and Mathematics
Bd. (Inside cover): V. S. Frolovskiy, poet. Bd.: N. I. Evgenyev.

PURPOSE: The publication is intended for the scientific workers in aerobiology and aerology, as well as for graduate students in these fields.

CONTENTS: This is a collection of 6 articles published as No. 102 of the *Transactions of the Royal Geographical Society* and is a thorough and useful study of the physics of clouds. Individual articles are concerned with convective clouds and their radar characteristics, the microstructure of supercooled clouds, radiative properties of clouds, the microstructure of stratiform clouds, the formation of cloud systems and precipitation. An extensive bibliography is included.

DATE OF COMPLETION

Blazewicz, Ya. B., and M. P. Churilova. Some Characteristics of the Conditions of the Atmosphere During the Formation of Cumulus and Cumulonimbus Clouds

Alabek, S. B. Investigations of the Swelling of Convection Clouds During the Instationary Period of the Atmosphere.

Blumstein, G. T., and M. A. Elsmoh. Characteristics of the Microstructure of Supercooled Alloys 50

Almdorff, G. W., and M. S. ~~Wendman~~. On the Problem of Method in Determining the Characteristics of the Distribution of Droplet Sizes in Clouds 50

Kotov, E. F. **Radical Characteristics of Gluconate and Saccharate** 63

Abstract

AVAILABILITY: 21:00-27:00, 00:00-03:00
 DATE 2/2
 24/02/2007
 9-9-60

OSIPOVA, G.I.; FRIDMAN, Yu.S.

Estimation of the efficiency of cloud modification with a view to
increased precipitation. Trudy GGO no.156:31-45 '64.

(MIRA 17:10)

FRILMAN, L. G.

12(c) PHASE I BOOK EXPLANATION SOV/1728

Академи́н наук СССР. Институт металлургии
Современные проблемы металлургии (Modern Problems in Metallurgy)
Moscow, Izdatvo AN SSSR, 1978. 640 p. 3,000 copies printed.

Red. Ed.: A. M. Samarin, Corresponding Member, USSR Academy of
Sciences; Ed.: of Publishing House: V. J. Kuznetsov, and
A. M. Burdakov. Tech. Ed.: T. V. Polyakova.

PURPOSE: This book is intended for scientific and technical per-
sonnel in the field of metallurgy.

CONTENTS: This is a collection of articles on certain aspects of
Soviet metallurgy. The book is dedicated to Academician
Ivan Pavlovich Mardin on the occasion of his 75th birthday. The
book is divided into seven parts. The first part consists of
two articles presenting a brief account of the history and
professional activity of the Soviet metallurgist. It includes an
article by John Chipman, Nicholas Grant, and John Elliott (M.I.T.,
USA) describing their meeting with Mardin in Moscow and also his
visit to the United States. The second part consists of three
articles and deals with raw materials and fuels for the Soviet
metallurgical industry. The third part represents the major
sections of the book. It consists of 25 articles dealing with
the various aspects of the metallurgy of pig iron and steel.
The fourth part consists of two articles treating the metal-
lurgy of nonferrous metals. The fifth part consists of three
articles on the forming of metals. The sixth part consists of
eight articles discussing various aspects of physical metal-
lurgy. The last part deals with general problems in the field
of metallurgy. References are given after each article. No
periodicals are mentioned.

TABLE OF CONTENTS:

Modern Problems in Metallurgy	SOV/1728
Kozlov, I. I. [Doctor of Chemical Sciences, Metallurgical Institute Inst. A. M. Shvayev, AS USSR]. Chemistry of Platinum	583
Starodubov, K. P. [Academician], and Yu. I. Borokovskiy [En- gineer, Institute of Ferrous Metallurgy, AS USSR]. In- creasing the Strength and Toughness of Low Carbon Steel by Heat Treatment	592
Plakusevich, L. L., and I. O. Prigoda. Investigating Fatigue Strength of Rails Containing Arcs	598
Plakusevich, P. S., L. Ya. Kravchenko, and V. A. Koshkin [Metal- lurgical, Forging Specialist]. Increasing the Strength and their Resistance of Railroad Rails by Oil Quenching	604

GENERAL PROBLEMS IN METALLURGY

Kozlov, I. I. [Candidate of Technical Sciences, Director
(State Institute for the Design and Planning of Metallurgical
Plants)]. General Plans of Metallurgical Plants 613
AVAILABLE: Library of Congress
Card 12/72
SO/ed
6-19-79

DOV/133-59-4-21/32

AUTHORS: Pinkhusovich, L.L., Mar'yanovskaya, T.S., and Fridman, Z.G.

TITLE: Fatigue Strength of Heat Treated Rails Containing Arsenic (Ustalostnaya prochnost' termicheski obrabotannykh rel'sov, soderzhashchikh mysh'yak)

PERIODICAL: Stal', 1959, Nr 4, pp 360-363 (USSR)

ABSTRACT: The influence of the type of hardening process of rails containing arsenic on their fatigue strength was investigated. Experiments were carried out on rail specimens of the R-50 type, 1.7 m long containing various proportions of carbon (0.67 to 0.81%) and arsenic (0.12 to 0.23%) from four heats (table 1). During thermal treatment, specimens were charged into a cold electric furnace and heated to the hardening temperature (800 to 860°C) on average during 5 hours and then soaked at this temperature for 30 minutes. Two kinds of hardening were tested: 1) surface hardening of the head with water sprays in a machine UIM-Giprostal' and subsequently self tempered at 330 to 395°C; 2) hardening by immersion in oil with cooling to room temperature. Fatigue strength of hardened specimens was tested in a special machine, described in Ref 5 and 6.

Card 1/3

BOV/133-59-4-21/32

Fatigue Strength of Heat Treated Rails Containing Arsenic

The experimental results are given in table 2 and Fig 1 to 7. It was found that the arsenic content up to 0.23% has no negative influence on the fatigue strength of rails which confirmed earlier findings (Ref 1). The dependence of fatigue strength of rails on the type of thermal treatment is shown in fig 4 - hardening in water increases the fatigue strength of rails more than that in oil. The results for fatigue strength of treated rails showed a considerable spread. Microscopic investigations of polished sections indicated that thermally treated rails have on the working surface a decarburized layer of various depths and degree of decarburization (table 3). Fatigue strength of rails decreases with increasing depth of the zone of pure ferrite (Fig 7). It is concluded that if optimum conditions of thermal treatment are maintained, the process can be used as an effective method of increasing

Card 2/3

Fatigue Strength of Heat Treated Rails Containing Arsenic

SOV/133-59-4-21/32

the fatigue strength of rails. There are 7 figures,
3 tables and 6 references of which 5 are Soviet and
1 English.

ASSOCIATION: Institut Metallurgii AN SSSR (The Institute of
Metallurgy of the Academy of Sciences of the USSR)

Card 3/3

25(6)

30V/32-25-3-27/62

AUTHORS:

Oding, I. A., Fridman, Z. G.

TITLE:

The Importance of Surface Layers in Slow Ruptures of Metals at Creeping Conditions (Rol' poverkhnostnykh sloyev pri dlitel'nom razrushenii metallov v usloviyakh polzuchesti)

PERIODICAL:

Zavodskaya Laboratoriya, 1959, Vol 25, Nr 3, pp 329-332 (USSR)

ABSTRACT:

The fact that plastic deformations take place under other energy conditions in the surface layer than in lower layers is of especial importance for durability tests of heat-resistant metals. In metal working under creeping conditions the influence of the surface layer depends mainly on the scale-factor (I) in the case of small-dimensional samples. The influence of (I) on samples with a thickness of < 5 mm has so far not been examined systematically. In the case under discussion flat samples (Fig 1) of annealed, soft steel containing carbon (C - 0.15%, Mn - 0.39%, Si - 0.02%, S - 0.03%, P - 0.02%) were investigated. The thickness of the samples was changed from 0.15 to 2.0 mm and the creeping tests were carried out at 450° and stresses of 22 to 27 kg/mm². The creeping curves (Fig 2) and indices (Table)

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SCV/32-25-3-27/62

The Importance of Surface Layers in Slow Ruptures of Metals at Creeping Conditions

obtained are given. It was found that in the case of a reduction of the thickness of the samples the plasticity and working time of the samples are considerably influenced by (I), i.e. reduced. It is not advisable to use thin samples (thickness: 1 mm and below) in durability and creeping tests because reduced results will be obtained. There are 5 figures, 1 table and 2 references.

ASSOCIATION: Institut metallurgii imeni A. A. Baykova Akademii nauk SSSR (Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences, USSR)

Card 2/2

86060

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S/180/60/000/005/001/033
EO73/E135

AUTHORS: Ivanova, V.S., Oding, I.A., and Fridman, Z.G. (Moscow)

TITLE: Certain Relations Governing Long-Life Strength γ_0

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, No.5, pp.33-37

TEXT: In earlier work of the authors and their team (Refs 1-5) a new criterion of high temperature strength was established, namely, the "plasticity resource" ϵ_r , determined as the time to failure t_1 for a given constant stress σ_1 and an average creep speed V_1

$$\epsilon_r = V_1 T_1 \quad (2)$$

Assuming that for a given component during service life t_{sg} , total deformation ϵ_{tot} is permissible and the plasticity resource is ϵ_r , the remaining reserve plasticity resource will be

$$K_\epsilon = \frac{\epsilon_r}{\epsilon_{tot}} \quad (3)$$

By carrying out the strength calculations on the basis of the

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E073/E135

Certain Relations Governing Long-Life Strength

plasticity resource, the plastic properties of the metal can be better utilised and, consequently, higher creep speeds and higher rated stresses are permissible. However, calculations of the strength reserve on the basis of ϵ_r are difficult in cases in which the metal under consideration has a low plasticity resource. In this case the variance in experimental data makes accurate calculation difficult and prone to dangerous errors. In this paper another criterion is proposed for establishing the reserve strength of machine parts operating at elevated temperatures. The basic idea consists in selecting as the strength criterion the work required for failure C , assuming that it is a constant value and does not depend on the magnitude of the applied stress. Depending on the magnitude of stress and the duration of stress application, various degrees of damage may occur; if the same work C' is spent, the same degree of damage will be achieved for a given metal with various stresses and service durations. Then, the reserve strength until failure C will equal

$$K_c = \frac{C}{C'}$$

(4)

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E073/E135

Certain Relations Governing Long-Life Strength

If the work of a single dislocation is expressed by r , a stress σ will produce $e^{\beta\sigma}$ dislocations in the avalanche. The total number of avalanches required for the metal to fail will be

$$t = \frac{C}{kr \exp(\beta\sigma)} \quad (8)$$

At present no data are available which would permit establishing accurately the work until failure C during creep. However, it is shown in the paper that, assuming that the work until failure is a constant value, the line of equal damage of a given alloy is equidistant to the line of failure. Experimental results reproduced in the graph, Fig.3, for several steels and some other alloys indicate that in all cases the lines of proneness to damage are parallel to the lines of failure. Thereby, as the proneness to damage the authors assume that point on the creep curve which corresponds to the beginning of the third section, ¹⁸ the section of the curve with increasing creep speed. The theoretically established fact that all the lines of proneness to damage are parallel to the failure lines have been confirmed

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E073/E135

Certain Relations Governing Long-Life Strength

experimentally. Therefore, a very simple method is proposed of determining the coefficient of reserve working ability of the metal K_c , which can be expressed as the reserve service life for a given stress and can also provide a possibility of calculating the strength reserve from the reserve of service life. Structures in which the metal has an equal proneness to damage will possess equal strength reserve values. The distance between the lines of equal proneness to damage from the failure lines will differ for various metals, depending on the intensity of accumulation of damage. The proneness to damage of the metal can be expressed as the ratio of the past service time at a given stress to its service life until failure at the same stress. The here proposed method is more justified than the current method of calculating the coefficient of strength reserve, which is based on a constant stress reserve for any given service life. There are 3 figures and 9 references: 8 Soviet and 1 English.

SUBMITTED- July 6, 1960

Card 4/4

S/129/61/000/001/001/013
E111/E135

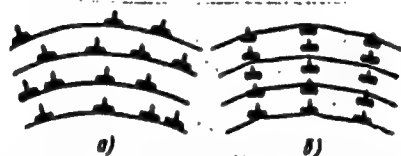
AUTHORS: Oding, I.A., Corresponding Member, AS USSR,
Zubarev, P.V., Engineer, and Fridman, Z.G., Engineer

TITLE: Polygonization in Metals

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metalloy,
1961, No. 1, pp. 2-10

TEXT: Polygonization is the formation in the grain of subgrains with their own orientations. The authors discuss this phenomenon which was first observed in 1932 (Ref.1) and the similar effect called "recrystallization in situ" (Refs 2-5). The paper is mainly a critical literature survey. The authors maintain that polygonization can be correctly explained only on the basis of dislocation theory, as shown schematically in Fig.2.

Fig. 2



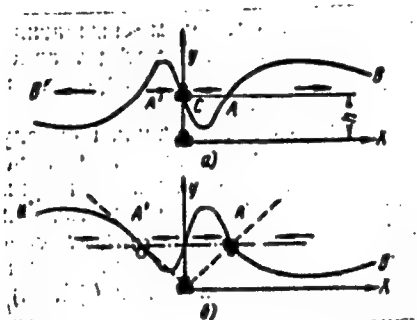
Card 1/4)

S/129/61/000/001/001/013
E111/E135

Polygonization in Metals

The authors consider the interaction of two parallel dislocations (Fig.3) and then that of many such dislocations from the aspect of polygonization. They then discuss polygonization in extension. The distortion of slip lines in extension of a crystal is shown schematically in Fig.4. Here temperature plays a major part. Polygonization in metals with various degrees of purity has been

Fig. 3



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S/129/61/000/001/001/013
E111/E135

Polygonization in Metals

found to be facilitated by increasing purity (Fig.7 shows polygonal structure in ferrite grains). Figs 5 and 6 (both quoted from Kochendörfer and Ewertz, 'Archiv Eisenhüttenwesen', Vol.30, No.7, 1959) show the temperature-deformation-grain area-grain-number relations. The rate of polygonization is determined by dislocation effects which are themselves subject to various influences (Ref.34). Polygonization occurs in creep (e.g. Refs 13-15, 35-37) and this effect has been studied (Refs 38-49), it being shown (Ref.25) that with a suitable method of polygonization of iron and austenitic steels, creep rate can be greatly reduced. Fig.8 shows the creep curves for Armco iron, $\sigma = 8.5 \text{ kg/mm}^2$, $T = 450 \text{ }^\circ\text{C}$: (curve 1 - normalised state, $v_p = 1.1 \cdot 10^{-4} \%/h$; curve 2 - load relieved and furnace switched off; curve 3 - after mechanical working combined with heat treatment, $v_p = 4.5 \cdot 10^{-5} \%/h$). The authors discuss such methods. Polygonization in metals subjected to deformation and heat treatment and during crystallization is also considered. The survey concludes with a section on the influence of polygonization on mechanical properties, the

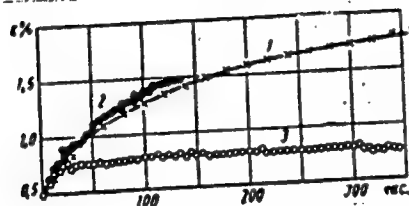
Card 3/4

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E111/E135

Polygonization in Metals

authors concluding that substantial improvements are possible.

Fig.8



There are 8 figures and 56 references: 8 Soviet and 48 non-Soviet.

ASSOCIATION: Institut metallurgii AN SSSR
(Institute of Metallurgy, AS USSR)

Card 4/4

IVANOVA, V.S.(Moskva); ODING, I.A.(Moskva); FRIDMAN, Z.G.(Moskva)

Certain regularities of creep life, Izv. AN SSSR, Otd. tekhn.
nauk. Met. i topl. no.5:33-37 S-O '60. (MIRA 13:11)
(Creep of metals)

ODING, I.A. (Moskva); FRIDMAN, Z.G. (Moskva)

Increasing the heat-resistance of metal alloys by thermomechanical
treatment. Izv.AN SSSR.Otd.tekh.nauk.Met.i topl. no.5:75-77 S-0
'61. (MIRA 14:10)

(Heat-resistant alloys--Heat treatment)
(Deformations (Mechanics))

S/032/61/027/001/019/037
B017/B054

AUTHORS: Ivanova, G. M., Kop'yev, I. M., and Fridman, Z. ~~Z. G.~~
TITLE: Comparative Studies of the Relaxation of Annular and
Cylindrical Specimens

PERIODICAL: Zavodskaya laboratoriya, 1961, Vol. 27, No. 1, pp. 74-76

TEXT: The methods suggested by I. A. Oding (Ref. 1) and V. V. Burduksiy (Ref. 2) to study the relaxation of cylindrical and annular metal specimens yielded satisfactory results. Cylindrical and annular specimens of austenite steel ЭИ 257 (EI 257) and commercially pure iron were annealed at 1500 and 980°C, held at these temperatures for 2 hours, and subsequently cooled in a furnace. After the treatment, the specimens showed the same microstructure. The relaxation of the annular specimens was determined by the standard method (Ref. 4). Their residual deformation was tested by an ИЗА-2 (IZA-2) comparator with an accuracy of ± 0.002 mm. The study of the relaxation of both annular and cylindrical specimens took 200-250 hours. At the initial stage of relaxation, stress decreased more rapidly in annular than in cylindrical specimens. This effect is explained by a shift

Card 1/2

Comparative Studies of the Relaxation of
Annular and Cylindrical Specimens

S/032/61/027/001/019/037
B017/B054

in the distribution of stress over the cross section of the annular specimens. The experiments were made by means of an East-German machine of the VEB Werkstoffprüfmaschinen (State-owned Enterprise of Material Test Machines) reconstructed by the Institut mekhaniki AN SSSR (Institute of Mechanics AS USSR). There are 2 figures, 1 table, and 5 Soviet references. ✓

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy imeni A. A. Baykov), Institut mekhaniki Akademii nauk SSSR (Institute of Mechanics, Academy of Sciences USSR)

Card 2/2

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S/659/62/009/000/009/030
1003/1203

AUTHORS Oding, I. A. and Fridman, Z. G
TITLE Increase in long-time strength by a combined mechanical and thermal treatment
SOURCE Akademiya nauk SSSR. Institut metallurgii. Issledovaniya po zharoprochnym splavam
v 9. 1962. Materialy Nauchnoy sessii po zharoprochnym splavam (1961 g), 66-72

TEXT The aim of this work is to investigate the possibility of increasing the long-time strength of alloys by creating mosaic structures. Samples of austenitic stainless steel 1 x 18H9(1Kh18N9) and of two Cr-Ni-base alloys 5 mm in diameter and 15 mm in length were heated to 600°C, stretched to a 10% deformation at a rate of 25 mm/min and kept at this temperature for 100 hours, after unloading. The long-time strength of these samples at various temperatures was investigated and the conclusion was reached that up to a 30-fold increase in the long time strength can be achieved by this method. This is due to a breaking-up of the crystals into small blocks (~ 0.3μ), which takes place as a result of the plastic deformation and the annealing which follows. In the discussion, M. L. Bernshtein emphasized the great value of this work, but suggested that it might be interesting to investigate the dislocation movements in the zone of stress in processes in which no phase transformations take place, or in cases when phase transformations take place together with a breaking-up of the crystals into blocks. There are 4 figures.

Card 1/1

ODING, I.A.; CORDIYENKO, L.K.; FRIDMAN, Z.G.

Certain regularities in the changes of electric conductivity
and structure of heat-resistant materials during their
thermomechanical treatment. Issl. splav. tsvet. met. no.4:
25-38 '63. (MIRA 16:8)

(Heat-resistant alloys—Hardening)
(Steel, Heat-resistant—Metallography)
(Electric conductivity)

ACCESSION NR: AT4007043

S/2598/63/000/010/0214/0217

AUTHOR: Mikheyev, V. S.; Markovich, K. P.; Fridman, Z. G.

TITLE: Heat resistance, creep and structural stability of AT-3 titanium alloy

SOURCE: AN SSSR. Institut metallurgii. Titan i yego splavy*, no. 10, 1963.
Issledovaniya titanovy*kh splavov, 214-217

TOPIC TAGS: titanium alloy, AT-3 titanium alloy, titanium alloy heat resistance, titanium alloy creep, titanium alloy structural stability, titanium alloy embrittlement, titanium alloy property, alloy heat resistance, alloy creep strength

ABSTRACT: The authors investigated the heat resistance, creep and thermal stability of an AT-3 Ti alloy (2.7% Al, 0.60% Cr, 0.30% Fe, 0.35% Si and 0.01%B) smelted under industrial conditions, annealed for 30 min. at 800C and cooled in the furnace. Heat resistance was tested by determining the tensile strength at 350C for loading times of 108, 1600 and 3500 hrs., resulting in σ values of 59, 58 and 55 kg/mm², respectively. The results of creep tests at 350C under loads of 15-45 kg/mm² (see Fig. 1 in the Enclosure) indicate that the relative deformation of this alloy is relatively constant at loads between 15 and 40 kg/mm², with no sign of brittleness. As shown by Fig. 2 in the Enclosure, brittleness also did not develop when the alloy was aged in argon at 400C for 3000 hrs. or at 350C

Card 1/4

ACCESSION NR: AT4007043

Enclosure 01

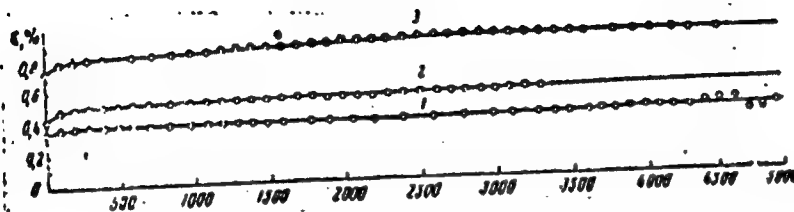


Fig. 1. Creep curves of alloy AT-3 at 350C and loads of: 1) 30, 2) 37 and 3) 45 kg/mm². Abscissa = time in hrs.

Card 3/4

L 15671-65 EWT(m)/EAP(w)/EWA(d)/EWP(t)/EWP(b) ASD-3/AFFTC/ESD-3/TJP(c)/
 ASD(m)-3 MJW/JD/MLK
 ACCESSION NR: AT4048072 8/0000/64/000/000/0204/0207

AUTHOR: Markovich, K.P., Mikheyev, V.S., Fridman, Z.G.

TITLE: Creep of the AT3 alloy at 350C

SOURCE: Soveshchaniye po metallurgii, metallovedeniyu i primeneniyu titana i yego splavov. 5th, Moscow, 1963. Metallovedeniye titana (Metallography of titanium); trudy Soveshchaniya. Moscow, Izd-vo Nauka, 1964, 204-207

TOPIC TAGS: titanium alloy, titanium alloy creep, aluminum containing alloy, titanium alloy heat resistance, titanium alloy mechanical property/alloy AT3

ABSTRACT: At present the only high strength alloys with a specific gravity of 4.4-4.6 g/cc suitable for work between 300 and 550C are alloys on a titanium base. It is therefore necessary to investigate the heat resistance of these alloys, especially during creep. The paper describes studies on the creep limit of the AT3 titanium alloy at 350C for a total deformation of 1% after 20,000 hours, as well as the changes in mechanical properties after creep testing. Previous tests showed high creep resistance at temperatures of 360 and 350C and stresses of 30 kg/mm² after 5,000 hours. The chemical composition of the AT3 alloy is: Ti base, 2.7% Al, 0.6% Cr, 0.30% Fe, 0.36% Fe, 0.36% Si, 0.01% B. The

Card 1/3

L 15671-65

ACCESSION NR: AT4048072

test samples were made of forged bars, 20 mm in diam. The testing was done on the IP-5 machine at a constant temperature of 350C and stresses of 15, 30, 33, 37, 45 and 50 kg/mm² for 5454, 6662, 5705, 5215, 12000 and 9300 hours. The shape of the curve after creep testing at stresses of 15 and 30 kg/mm² approached a straight line. The total deformation after 5000 hours increased with the creep stress from 0.18% at 15 kg/mm² to 0.92% at 37 kg/mm². For 45 and 50 kg/mm² the set creep begins after 400 hours and does not end before 12,000 hours, when the total deformation is 1.2%. The tests showed that the creep rate at a residual deformation of 1% after 20,000 hours is 5×10^{-5} %/hr. Consequently, the limiting stress causing a creep rate of 5×10^{-6} %/hr at 350C for AT3, containing 2.7% Al and 1.26% Cr, Fe and Si, is 42 kg/mm². After the creep test, the ultimate strength and plasticity were not significantly changed. The alloy did not become brittle. The authors note that the creep rate of alloy AT3 does not exceed 2×10^{-5} %/hr for a creep stress of 37 kg/mm², although at 45 and 50 kg/mm² it equals 0.5×10^{-4} and 1.6×10^{-4} %/hr. Orig. art. has: 4 figures.

ASSOCIATION: none

Card 2/3

L 15671-65

ACCESSION NR: AT4048072

SUBMITTED: 15 Jul64

ENCL: 00

SUB CODE: MM

NO REF SOV: 003

OTHER: 000

Card 3/3

IVANOVA, V.S.; GORODIYENKO, L.K.; GEMINOV, V.N.; ZUBAREV, F.V.;
FRIDMAN, Z.G.; LIHEROV, Yu.F.; TERE'T'YEV, V.F.; VOROB'YEV,
N.A.; KUDRYASHOV, V.G.; BERLIN, Ye.N., red.

[Role of dislocations in the hardening and the failure of
metals] Rol' dislokatsii v uprochnenii i razrushenii metal-
lov. Moskva, Nauka, 1965. 179 p. (MIRA 18:10)

1. Moscow. Institut metallurgii. 2. Laboratoriya prochnosti
Instituta metallurgii im. A.A.Baykova, Moskva (for all except
Berlin).

L 13900-66 EWT(m)/EWA(d)/T/EWP(e)/EWP(b)/EWP(t) MJW/JD
ACC NRI AP6003298 (N) SOURCE CODE: UR/0129/66/000/001/0005/0008

AUTHOR: Gordiyenko, L. K.; Fridman, Z. G.

ORG: Institute of Metallurgy im. A. A. Baykov (Institut metallurgii)

TITLE: Changes of the internal friction of heat-resistant materials strengthened by mechanicothermal treatment

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 1, 1966, 5-8

TOPIC TAGS: nickel alloy, chromium containing alloy, heat resistant alloy, internal friction, alloy heat treatment, alloy structure, mechanicothermal treatment, alloy heat resistance / KhN77TYu alloy, KhN70VMTYu alloy

ABSTRACT: The relationship between the changes in the internal friction of heat-resistant nickel-chromium alloys and the degree of deformation in mechanicothermal treatment (MTT) has been investigated to determine the optimum conditions for the formation of a polygonized structure. Specimens of KhN77TYu and KhN70VMTYu alloys were stretched 0.15—5.0% at 600C and then annealed at 600C for 100 hr. Internal friction measurements were made in a vacuum of 10^{-5} mm Hg at 20—600C. The internal friction changes were determined from the temperature

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UDC: 669.14.018.45:620.18

L 13900-66

ACC NR: AP6003298

dependence of the logarithmic decrement of vibration measured with an accuracy of $\pm 0.5\%$. It was found that with increasing elongation the internal friction in both alloys at first sharply decreased, reached a minimum at 0.3—0.4 and 1.0% elongation for KhN77TYu and KhN70VMTYu alloys, respectively, and then gradually increased with increasing deformation. However, in the entire range of the investigated deformation (up to 5%), the magnitude of the internal friction remained lower than the initial. The pattern of the temperature dependence of the internal friction is well explained by the structural changes resulting from MTT. The minimum on the internal friction-deformation curves corresponds to the most developed and stabilized polygonal structure and to a maximum increase in the heat resistance of the alloys. Thus, internal friction and electric conductivity are useful for determining the optimum deformation conditions in MTT which would ensure a maximum increase in heat resistance. Orig. art. has: 2 figures.

[MS]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 010/ ATD PRESS: 4/1/

TS
Card 2/2

FRIDOLIN, G.G.; BUNIN, V.A., nauchn. red.

[Design features of semiconductor devices; survey of foreign patents] Konstruktivnoe vypolnenie poluprovodnikovyykh priborov; obzor inostrannykh patentov. Moskva, TSentr. nauchno-issl. in-t patentnoi informatsii i tekhniko-ekon. issledovaniy, 1964. 55 p.

(MIRA 18:7)

ACC NR: AP6009616

SOURCE CODE: UR/0369/66/002/001/0119/0126

AUTHOR: Ivanova, V. S.; Gordiyenko, L. K.; Fridman, Z. G.; Zubarev, P. V.

ORG: Institute of Metallurgy im. Baykov, Moscow (Institut metallurgii)

TITLE: Mechano-thermal treatment as an effective method for increasing the heat resistance of metals and alloys

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 1, 1966, 119-126

TOPIC TAGS: metal treatment, alloy treatment, mechano-thermal treatment

ABSTRACT: Four methods of mechano-thermal treatment of metals and alloys (MTO) have been developed. The first method consists of plastic deformation with 1-10% reduction with simultaneous or subsequent polygonization annealing at a temperature below the recrystallization temperature. In the second method, deformation is performed in several steps at elevated temperature followed by polygonization annealing at the same temperature after each step. The third method is a combination of the first or second with nitriding, which brings about a more complete blocking of the dislocation walls. In the fourth method the material is subjected to repeated deformation at room temperature with aging at 100-150C after each deformation. In all four methods the total reduction should be at least 0.2-0.4% but below 10%, since in commercial metals and alloys permanent damage can occur at reductions of 10% and more. On the basis of extensive experiments the conditions of MTO for many structural materials have been

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L 20682-66

ACC NR: AP6009616

determined. For example, 1Kh18N9T steel (AISI-321) deformed with 0.3% reduction, annealed for 24 hr, and tested under a stress of 18 dan/mm² (all three at 500C) had a creep rate of $2.5 \cdot 10^{-4}$ %/hr compared to $4.8 \cdot 10^{-3}$ %/hr for fully annealed steel. EI-395 steel (Timken 16-25-6) deformed with 2.5% reduction, annealed for 50 hr, and tested under a stress of 26 dan/mm² (all three at 625C) had a creep rate of $1.5 \cdot 10^{-4}$ %/hr compared to $4.6 \cdot 10^{-3}$ %/hr after conventional treatment. EI-437A alloy (Nimonic 80A) deformed with 0.3% reduction, annealed for 100 hr, and tested under a stress of 40 dan/mm² (all three at 600C) had a creep rate of $9.20 \cdot 10^{-4}$ %/hr compared to $1.77 \cdot 10^{-3}$ %/hr after conventional treatment. AT-3 titanium alloy deformed with 0.5% reduction, annealed for 50 hr, and tested under a stress of 15 dan/mm² (all three at 500C) had a creep rate of $1 \cdot 10^{-3}$ %/hr compared to $6.6 \cdot 10^{-3}$ %/hr after conventional treatment. MTO does not reduce ductility, and the total elongation in creep and stress-rupture tests remains the same. Orig. art. has: 5 figures and 2 tables. [AZ]

SUB CODE: 11, 13/ SUBM DATE: 20Sep65/ ORIG REF: 017/ OTH REF: 001/ ATD PRESS:

4223

Card 2/2 BK

L 22991-66 ~~EW(t)/EWP(t)/EWA(t)/T/EWP(t)~~ ~~IMP(c)~~ JD/HW/GS

ACC NR: AT6012394 SOURCE CODE: UR/0000/65/000/000/0221/9228

AUTHOR: Kornilov, I. I. (Doctor of chemical sciences, Professor);
Ivanova, V. S.; Markovich, K. P.; Fridman, Z. G.

ORG: none

TITLE: Heat resistance of AT3 titanium alloy after standard heat treatment and after mechanothermal heat treatment

SOURCE: Soveshchaniye po metallokhimii, metallovedeniyu i primeneniyu titana i yego splavov, 6th. Novyye issledovaniya titanovykh splavov (New research on titanium alloys); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 221-228

TOPIC TAGS: titanium, titanium alloy, aluminum containing alloy, chromium containing alloy, heat resistant alloy, alloy heat treatment, mechanothermal treatment, alloy creep resistance, alloy rupture strength / AT3 alloy

ABSTRACT: The heat resistance of AT3 titanium alloy (2.7% Al, 0.6% Cr, 0.3% Fe, 0.36% Si, 0.01% B) has been tested at 350 and 500C. After standard heat treatment (annealing at 880C followed by air cooling) the structure of the alloy consisted of the α -phase and traces of the β -phase. The creep rate at 350C changed relatively little with a

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UDC: 669.295.001.5

L 22991-66

ACC NR: AT6012394

change in stress. The 10,000 hr rupture strength¹⁸ was 56 kg/mm², i.e., about 90% of the tensile strength. Prolonged service at 350C affects neither the structure nor the properties of the alloy. For instance, the elongation dropped from the initial 15% to 13% after 5454 and 5215 hr tests under a respective stress of 15 and 37 kg/mm². The high rupture strength, structural stability, high oxidation resistance, and high ductility make AT3 alloy a promising structural material for prolonged operation at 350—450C. At 500C, however, the alloy softens rapidly. The 500 hr rupture strength was only 22 kg/mm². Microscopic examination showed that the softening of AT3 alloy at 500C was due to precipitation of Ti₅Si₃ compound (the γ -phase) from the solid solution along the active slip planes. Four cycles of mechanothermal treatment (24 hr at 500C under a stress of 12 kg/mm² followed by 24 hr without stress at the same temperature) prolonged the second creep stage at 500C by nearly five times and more than doubled the rupture life. In alloy subjected to MTT and subsequent creep tests, the precipitated γ -phase particles were more uniformly distributed over the grain volume. Orig. art. has: 6 figures and 2 tables. (MS)

SUB CODE: 11, 13/ SUBM DATE: 02Dec65/ ORIG REF: 006/ OTH REF: 002
ATD PRESS: 4238

Card 2/2 *pla*

L 40043-66 EWP(k)/EWT(d)/EWT(m)/EWP(h)/T/EWP(l)/EWP(w)/EWP(v)/EWP(t)/ETI IJH(c)

ACC NR: AP6016584 (A,N) RH/JD/HW SOURCE CODE: UR/0129/66/000/005/0014/0017

AUTHORS: Gordiyenko, L. K.; Geminov, V. N.; Fridman, Z. G.; Vasil'chenko, G. S.; Rybovalov, Yu. P.

ORG: Institute of Metallurgy im. A. A. Baykov (Institut metallurgii); TsNIIT MASH

TITLE: Raising the creep⁴ resistance of steel of the martensite-ferrite class by methods of mechanical thermal processing ⁴

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 5, 1966, 14-17

TOPIC TAGS: ^{mechanical heat treatment,} metallography, ~~metallurgical processes~~, creep, metal deformation, martensite steel, ferrite steel, deformation testing machine / IP-2 deformation testing machine, IP-5 deformation testing machine, IM-4R deformation testing machine, 1Kh12V2MF martensite steel

ABSTRACT: Research was conducted for the purpose of finding effective combinations for strengthening steel 1Kh12V2MF. ⁴ This steel was used in the preparation of tubular disks and was worked at a temperature of 550C. Several thermomechanical processes were used in preparing the specimens for testing. The processes were treated as parametric cases for the strength-creep measurements. Among the testing equipment ¹⁴ were machines IP-2, IP-5, and IM-4R. Several effects were measured, including the effect of the degree of deformation on the strengthening for several methods of thermomechanical processing, the creep rate at constant stress, and temperature for

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UDC: 669.14.018.45:621.78:539.374

L 40043-66

ACC NR: AP6016584

different processes, and the increase in creep stability obtainable through the use of optimal thermomechanical processes. It was found that optimal processing can reduce the creep rate by as much as 80% over the rate which characterizes the unstrengthened material. The steps involved in the recommended optimal process are sequentially summarized. Orig. art. has: 3 tables and 2 figures.

SUB CODE: 11/3/SUBM DATE: none/ ORIG REF: 004

Card 2/2 *gd*

ACC NR: AP6024530

SOURCE CODE: UR/0148/66/000/007/0153/0156

AUTHOR: Antikayn, P. A.; Fridman, Z. G.

ORG: Institute of Metallurgy im. Baykov (Institut metallurgii)

TITLE: Effect of fatigue "training" on rupture strength

SOURCE: IVUZ. Chernaya metallurgiya, no. 7, 1966, 153-156

TOPIC TAGS: steel, low carbon steel, steel training, fatigue trained steel, ~~steel~~ rupture strength, steel rupture life, *FATIGUE TEST*

ABSTRACT: Specimens of 15kp carbon steel were subjected to stress rupture tests at 475C under a stress of 15.0—18.0 kg/mm² after being

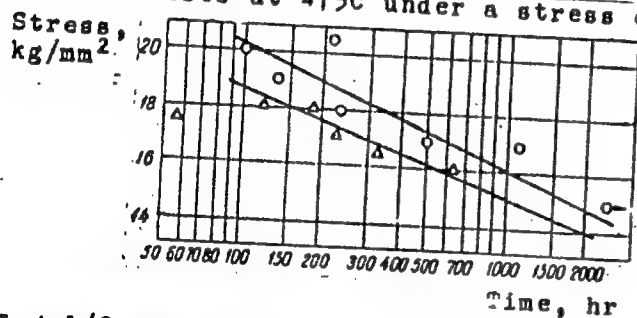


Fig. 1. Stress versus rupture life of untrained (circles) and fatigue-trained (triangles) 15-kp steel specimens at 475C

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UDC: 669.15—194—12:620.178.38

L 27233-66 (EWT(m)/T/EWP(w)/EWP(t) IJP(c) JD

ACC NR: AM6003228

Monograph

40 UR/

Ivanova, V. S.; Gorodiyenko, L. K.; Geminov, V. N.; Zubarev, P. V.; Fridman, Z. G.;
Liberov, Yu. P.; Terent'yev, V. E.; Vorob'yev, N. A.; Kudryashov, V. G.

Role of dislocation in the strengthening and failure of metals (Rol'dislokatsii
v uprochnenii i razrushenii metallov) Moscow, Izd-vo "Nauka", 1965. 179 p.
illus., biblio. Errata slip inserted. 4500 copies printed.

TOPIC TAGS: metal, alloy, metal strength, alloy strength, dislocation, dislocation theory, thermomechanical treatment, metal failure

PURPOSE AND COVERAGE: The book is a continuation and development of the ideas of the late Professor I. A. Odintsov on the theory of dislocations. This theory served as the basis for the elaboration of new methods of strengthening metals and alloys. In the first part (Chap. I-IV) of this monograph the role of dislocations in the development of plastic deformation and the generation of flaws is discussed. In the second part (Chap. V-VII), the theoretical premises for metal and alloy strengthening with thermomechanical treatment and the effect of this treatment on the mechanical properties of metals and alloys under static and cyclic loads are reviewed.

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UDC: 669.018.25:669-17

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ACCNR: AM6003228

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Ch. III. Effect of grain size, temperature, and deformation rate on the characteristics of metal fluidity -- 46

Ch. IV. Mechanism of brittle rupture and regularities in the defectibility of metals during creep -- 73

Ch. V. Basic premises for the development of methods of material strengthening by means of thermomechanical treatment -- 103

Ch. VI. Effect of basic technological factors on the effect of strengthening in thermomechanical treatment -- 119

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SUB CODE: 11/ SUBM DATE: 06Aug65/ ORIG REF: 180/ OTH REF: 238/

Card 2/2 CC

ACC NR: AT6034464

(N)

SOURCE CODE: UR/0000/66/000/000/0271/0275

AUTHOR: Fridman, Z. G.

ORG: none

TITLE: Effect of fractional deformation during mechanical heat treatment on the heat resistance

SOURCE: AN SSSR. Institut metallurgii. Svoystva i primeneniye zharoprochnykh splavov (Properties and application of heat resistant alloys). Moscow, Izd-vo Nauka, 1966, 271-275

TOPIC TAGS: mechanical heat treatment, metal deformation, heat resistance, work hardening

ABSTRACT: The investigation was carried out in a laboratory rolling mill whose working rollers had a diameter of 120 mm and which had a drive power of 20 kg. The stress and temperature parameters of the hardening process during rolling were so chosen that they were identical to those used in treatment by elongation: the degree of reduction was chosen to be numerically equal to the optimum relative elongation; the temperature of the deformation and of the following 100-hour holding time was 600°C. Billets with dimensions of 12 x 12 mm made of alloy EI437A and austenitic steel 1Kh18N9 were heated in a furnace to a temperature of 620-630°, and then rolled with one pass at a rate of

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ACC NR: AT6034464

0.5 meters/sec. The degree of reduction for alloy EI437A was 0.3% and for steel 1Kh18N9 it was 10%. The rolled billets were held at 600° for 100 hours, and then samples were prepared for tests of the long term strength. Experimental results are shown in a figure. The method of fractional deformation during rolling, during mechanical heat treatment, was tested on steel 1Kh18N9. The given total optimum reduction (10% at a temperature of 600°) was divided into five equal portions and rolling was done in five passes, each with a reduction of 2%. It was found that intermediate annealing promotes hardening of the deformed macrovolumes. Results of tests of the long term strength for samples hardened by this method are presented in a figure. The data indicates that the use of fractional reduction during rolling leads to a more uniform hardening of the metal over the whole working volume, and sharply increases the effectiveness of mechanical heat treatment, compared to the same degree of reduction achieved in one pass. Analogous results were obtained in hardening alloy EI437A by the same method of fractional reduction. Orig. art. has: 2 figures.

SUB CODE: 11/ SUBM DATE: 10Jun66/ ORIG REF: 007

Card 2/2

VOLKOPYALOV, Boris Petrovich, prof.; MAGON, E.E., red.; FRIDMAN,
Z.L., tekhn. red.; BARANOVA, L.G., tekhn. red.

[Swine raising] Svinovodstvo. 3., perer. izd. Moskva,
Sel'khozizdat, 1963. 380 p. (MIRA 16:11)
(Swine)

MEDOVikov, I.I., inzh.; FRIDMAN, Z.N., inzh.; MEDOVikov, I.M., inzh.

New method of shore protection. Transp.stroi. 13 no.9:30-32
S '63.

(MIRA 16:12)

VLADIMIROV, A.P., kand.tekhn.nauk; MIFTYAKHETDINOV, Kh.A., inzh.; FRIDMAN, Zh.Ya.,
inzh.; NEGROVA, E.I., inzh.

Use of infrared heating elements in the transportation of aggregates
under winter conditions. Stroil. mat. 11 no.10:15-16 0 '65.

(MIRA 18:10)

FRIDMAN-POGOSOVA, A. V.

see also: POGOSOVA, A. V.

PORYADIN, V.T.; FRIDMAN-SPERANSKAYA, P.G.

Physiotherapy in endarteritis and atherosclerosis of the vessels of the extremities. Vop. kur., fizioter. i lech. fiz. kult'. 30 no.3:211-215 My-Je '65. (MIRA 18:12)

1. Klinika obshchey khirurgii (direktor - zasluzhennyy dayatel' nauki RSFSR prof. G.P. Zaytsav) pediatricheskogo fakul'teta II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova i 4-ya Moskovskogo gorodskaya klinicheskaya bol'nitsa (glavnyy vrach V.V. Barlyayeva). Submitted January 20, 1963.

KUNITSA, Nikolay Andreyevich; FRIDNER, A., red.; MOLCHANOVA, T.,
tekhn. red.

[Kiliya; study]Kiliia; ocherk. Odessa, Odesskoe knizhnoe
izd-vo, 1962. 141 p. (MIRA 15:9)
(Kiliya)

MALINOVSKIY, Nikolay Kharitonovich; FRIDNER, A., red.; MOLCHANOVA, T.,
tekhn. red.

[Under Antarctic skies] Pod nebom Antarktiki. Odessa, Odes-
skoe knizhnoe izd-vo, 1962. 77 p. (MIRA 15:10)

1. Redaktor gazety kitoboynoy flotilii "Sovetskaya Ukraina" -
"Kitoboy Ukrainy" (for Malinovskiy).
(Antarctic regions—Whaling)

KOLYADA, Ivan Mitrofanovich; FRIDNER, A., red.; MOLCHANOVA, T., tekhn.
red.

[Through sunny Odessa; a concise guidebook] Po solnechnoi
Odesse; kratkii putevoditel'. Odessa, Odesskoe knizhnoe izd-
vo, 1963. 127 p. (MIRA 16:10)
(Odessa--Guidebooks)

BRYGIN, N.A.; DREMIN, A.A.[translator]; FRIDNER, A.A., red.

Odessa. Odessa, Maiak, 1965. 13 p. (MIRA 18:~)

L 31978-66 EWP(f)/T-2 WNW

ACC NR: AP6013386 (A,N) SOURCE CODE: UR/0098/66/000/005/0013/0018

AUTHOR: Ol'khovskiy, G. G. (Candidate of technical sciences); Fridrikh, A. M. (Engineer)

ORG: All-Union Heat Technology Institute (Vsesoyuznyy teploekhnicheskii institut)

TITLE: Experimental investigation of start-up conditions for a Type GT-25 LMZ gas turbine installation

SOURCE: Teploenergetika, no. 5, 1966, 13-18

TOPIC TAGS: gas turbine ~~engine~~, combustion gas dynamics, *electric motor, combustion chamber, ignition-Type GT-25 LMZ gas turbine*

ABSTRACT: The article presents the results of an experimental investigation of the operation of a single-shaft power gas turbine installation and a determination of the characteristics of the individual elements of the installation during start-up conditions. The shaft of the turbine group was initially set into rotation by use of a start-up non-synchronous electric motor with a phase rotor. After the motor was switched on, the turbine group rapidly accelerated to a rate of 900-1000 rev/min. The article gives a scheme of the apparatus. Results of a series of experiments are exhibited graphically. It was found that

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UDC: 621.438.62-57.001.5

L 31978-66

ACC NR: AP6013386

during the start-up the temperature in front of the turbine varied smoothly and did not exceed 650-600°C. It was found that the power of the start-up motor was sufficient to accelerate the rotation rate of the gas turbine installation up to 1000 rev min which is suitable for ignition of the combustion chamber. Ignition of the combustion chamber did not present difficulties; burning of the fuel was stable under all start-up conditions, without signs of vibration. The exhaust was light and clean. Considerable expenditures of external energy are necessary for acceleration up to a rate of 1500-1600 rev min. The efficiency of the compressors under all conditions was 80-85%, that is, sufficiently high. The efficiency of the turbine was 80-85%. It was found that the coordination of the individual stages and the heat losses during the heating up of the turbine had only a slight effect on its efficiency. Orig. art. has: 7 figures.

SUB CODE: 21/ SUBM DATE: none/ ORIG REF: 006

Card 2/2 LC

FRIDRICH, Bedrich; KOTT, Josef

New method of production of the Ra-Be type powerful neutron source. JADERNA energie 10 no.8:295-297 Ag '64.

1. Institute of Research, Production and Use of Radioisotopes, Prague (for Fridrich). 2. Zavody V.I. Lenina National Enterprise, Plzen (for Kott).